

DESIGN

Soil Nailing Description

An in situ reinforcement technique that improves the soil's overall stability, soil nailing is constructed with steel members that are usually

grouted into the ground. A relatively large number of soil nails are installed in a pattern that reinforces the earth into a stable block, which supports the unreinforced soil behind it in a

manner that is similar to that of a gravity wall.

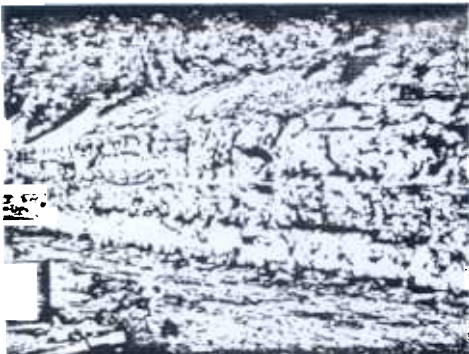
Soil nailing walls are designed to be both externally and internally stable. External stability requires that the block be designed with an adequate factor of safety against sliding, overturning, and bearing failures. To check a structure's internal stability, Schnabel Foundation uses a method of limit

equilibrium analysis that computes the driving and resisting forces along the critical failure surface.

To further the development and use of soil nailing, Schnabel has instrumented many soil nailing structures, conducted extensive model testing, and thoroughly analyzed prototype walls. As a result, our designs are economical and control movement.



First, a shallow cut is made.



An array of soil nails forms a stable block that supports the earth behind it.



This soil nailing wall was built as a research project to be instrumented and analyzed to advance the understanding of the behavior of soil nailing walls. Fredericksburg, VA

Soil nailing structures are designed to resist the sliding and overturning forces acting on it.

Shotcrete maintains the soil between the nails.

Soil nails act to reinforce the soil.

